

In the Claims

Please cancel claims 1 - 35 without prejudice.

Please add claims 36 - 70 as follows:

36. (New) A process for treating excess sludge from a biological treatment system comprising:
- a. biologically treating water or wastewater and producing excess sludge;
 - b. solubilizing the sludge;
 - c. subjecting the solubilized sludge to a liquid - solid separation process and separating the solubilized sludge into a liquid fraction and a solid fraction;
 - d. at least partially digesting the liquid fraction and directing the at least partially digested liquid fraction to the biological treatment system for further treatment;
and
 - e. solubilizing the solid fraction of the solubilized sludge.
37. (New) The method of claim 36 wherein the excess sludge is solubilized in a first solubilizer and wherein the solid fraction of the solubilized sludge is solubilized in a second solubilizer.
38. (New) The process of claim 36 including thickening or dehydrating the sludge prior to the sludge being solubilized.
39. (New) The process of claim 38 wherein the thickening or dehydration process produces an overflow that is directed to the biological treatment system.

40. (New) The process of claim 39 including adding a polymer to the sludge to thicken the sludge.
41. (New) The process of claim 36 wherein the step of solubilizing the sludge includes at least one step taken from the group consisting of:
- a. oxidizing thermal hydrolysis;
 - b. non-oxidizing thermal hydrolysis;
 - c. chemical hydrolysis;
 - d. enzymatic hydrolysis;
 - e. biological hydrolysis;
 - f. ultrasound treatment;
 - g. grinding; and
 - h. electroporation.
42. (New) The process of claim 41 wherein the step of solubilizing the sludge includes thermal hydrolysis that is carried out at a temperature between 50°C and 180°C, and at a pressure of between 2 and 40 bars.
43. (New) The process of claim 42 wherein the thermal hydrolysis step is carried out at a temperature of about 175°C and at a pressure of about 15 bars.
44. (New) The process of claim 42 wherein the thermal hydrolysis step is carried out for between 10 and 180 minutes.
45. (New) The process of claim 44 wherein the thermal hydrolysis step is carried out for about 30 minutes.

46. (New) The process of claim 41 wherein solubilizing the sludge includes an oxidizing thermal hydrolysis step that is carried out using at least one of the oxidizing agents selected from the group consisting of air, oxygen, air enriched with oxygen, hydrogen peroxide, and ozone.
47. (New) The process of claim 36 including anaerobically digesting the liquid fraction.
48. (New) The process of claim 36 including aerobically digesting the liquid fraction.
49. (New) The process of claim 47 wherein the digestion step is of the mesophilic type.
50. (New) The process of claim 47 wherein the digestion step is of the thermophilic type.
51. (New) The process of claim 47 wherein the digestion step is performed using free and/or fixed cultures.
52. (New) The process of claim 47 wherein the digestion step is carried out for between 1 day and 20 days.
53. (New) The process of claim 52 wherein the digestion step is carried out for between 1 day and five days.
54. (New) The method of claim 36 wherein the process for separating the solubilized sludge into a liquid fraction and a solid fraction is performed by centrifuging, filtration, dewatering, or settlement.

55. (New) The process of claim 36 wherein the liquid/solid separation step is performed with the addition of a flocculant.

56. (New) The process of claim 36 wherein the biological treatment system employs a biological treatment process associated with a separative membrane technique.

57. (New) A system for implementing the process of claim 36 comprising at least one solubilization unit for solubilizing sludge; at least one liquid/solid separation unit located downstream of the solubilization unit; at least one digester; means for routing a liquid fraction from the liquid/solid separation unit to the digester; means for routing a solid fraction from the liquid/solid separation unit to the solubilization unit; and means for routing the digested liquid fraction to the biological treatment system.

58. (New) The installation according to claim 57 wherein the liquid/solid separation unit is taken from the group consisting of a press filter, centrifuge, dewatering table or screw, membrane, or settlement tank.

59. (New) The system of claim 57 wherein the solubilization unit comprises at least one oxidizing or non-oxidizing thermal hydrolysis unit.

60. (New) The system according to claim 57 wherein the solubilization unit comprises a stirred reactor.

61. (New) The installation according to claim 57 wherein the solubilization unit comprises an unstirred reactor.

62. (New) The system of claim 57 wherein the digester is of the fixed and/or free culture type.
63. (New) The system of claim 57 wherein the digester is of the type with an ordered lining.
64. (New) The system of claim 57 wherein the digester is of the type with a bulk lining.
65. (New) The system according to claim 64 wherein the digester is of the UASB type with pellets.
66. (New) The system of claim 57 including thickener for thickening sludge and wherein the thickener is disposed on the upstream side of the solubilization unit.
67. (New) The system of claim 66 including means for routing an overflow from the thickener to the biological treatment system.
68. (New) The system of claim 57 including an intermediate unit for solubilizing said solid fraction on the upstream side of the solubilization unit and wherein the intermediate solubilization unit is different from the solubilization unit.
69. (New) The system of claim 57 including separation means on membranes.
70. (New) The system of claim 57 including means for ozonating the liquid fraction directed to the biological treatment system.